WHAT IS CLAIMED IS:

1. A compiler for producing an object program used to be executed on an architecture equipped with a plurality of memory hierarchies from a source program in conjunction with a computer system, comprising:

a step for interpreting either an option or a designation statement designating which memory hierarchy a target program mainly refers to data present in, when the target program is executed; and a step for performing an optimizing process

directed to said designated memory hierarchy.

2. A compiler as claimed in claim 1, wherein:

as said optimizing process directed to the designated memory hierarchy, a memory latency is calculated according to the designated memory hierarchy with respect to an instruction for accessing a memory; and an optimizing process responding to the calculated latency is carried out.

- A compiler as claimed in claim 1, wherein:
 as said optimizing process directed to the
 designated memory hierarchy, a loop transformation
 method of a loop interchange, a loop unrolling, or a
 loop tiling is determined according to the designated
 memory hierarchy with respect to a memory access
 instruction.
- An object program producing method executed by both a computer system and a compiler for producing an object program used to be executed on an

architecture equipped with a plurality of memory hierarchies from a source program in conjunction with a computer system,

said method comprising:

a step for interpreting either an option or a designation statement designating which memory hierarchy a target program mainly refers to data present in, when the target program is executed; and

a step for performing an optimizing process directed to said designated memory hierarchy.

A code producing method as claimed in claim 4, wherein:

as said optimizing process directed to the designated memory hierarchy, a memory latency is calculated according to the designated memory hierarchy with respect to a memory access instruction; and an optimizing process according to the calculated latency is carried out.

A code producing method as claimed in claim 4, wherein:

as said optimizing process directed to the designated memory hierarchy, a loop transformation method of a loop interchange, a loop unrolling, or a loop tiling is determined according to the designated memory hierarchy with respect to a memory access instruction.

7. A compiler wherein:
with respect to a program which is executed

on an architecture equipped with a plurality of memory hierarchies, said compiler interprets either an option or a designation statement designating which memory hierarchy said target program mainly refers to data present in.

- 8. A storage medium wherein:
- said storage medium has stored thereinto the compiler recited in claim 1.
- 9. A method for producing an object program used to be executed on an architecture equipped with a plurality of memory hierarchies from a source program in conjunction with a computer system, wherein:

said computer system executes:

a step for analyzing a designation statement designating which hierarchy an object program mainly refers to data stored in a memory of, when said object program is executed; and

a step in which an optimizing process including different processes sequences according to said plural memory hierarchies is carried out with respect to said source program, and an object program which has been optimized as to an access to said memory hierarchy is produced by selecting a processes sequence corresponding to the memory hierarchy designated by said designation statement.

10. An object program producing method as claimed in claim 9, wherein:

said designation statement is described in an

option within a compiler initiating command.

11. An object program producing method as claimed in claim 9, wherein:

said designation statement is inserted into said source program.

12. An object program producing method as claimed in claim 11, wherein:

said designation statement is applied to each of plural loops contained in said source program;

said analysis step includes a step for forming a loop table indicative of a correspondence relationship between the respective loops and the memory hierarchies designated by the designation statements corresponding to said loops; and

said execution step includes a step for acquiring a memory hierarchy designated by said designation statement by referring to said loop table.

13. An object program producing method as claimed in claim 9, wherein:

said memory hierarchies include a hierarchy constructed of a primary cache, a hierarchy constructed of a secondary cache, and a hierarchy constructed of a main storage apparatus.

14. An object program producing method as claimed in claim 9, wherein:

said optimizing process contains at least one of an optimizing process by instruction scheduling, a prefetch optimizing process, and an optimizing process

by loop tiling and loop interchange/loop unrolling.

15. An object program producing method as claimed in claim 14, wherein:

said optimizing process corresponds to the optimizing process by the instruction scheduling; and a number of memory access latency cycles to be set are different from each other according to said memory hierarchies in said processes sequence.

16. An object program producing method as claimed in claim 14, wherein:

said optimizing process corresponds to the prefetch optimizing process; and timing of a prefetch code to be inserted is different from each other according to said memory hierarchies in said processes sequence.

17. An object program producing method as claimed in claim 14, wherein:

said optimizing process corresponds to the optimizing process by the loop tiling; a tile size is different from each other according to said memory hierarchies in said processes sequence.

18. An object program producing method as claimed in claim 14, wherein:

said optimizing process corresponds to the optimizing process by the loop interchange/loop unrolling; and in said processes sequence, it is determined to apply, or not to apply either the loop interchange or the loop unrolling according to said

memory hierarchies.

An apparatus for producing an object program used to be executed on an architecture equipped with a plurality of memory hierarchies from a source program, comprising:

a storage apparatus for previously storing thereinto an optimizing process containing different processes sequences according to said plurality of memory hierarchies;

an input apparatus for inputting said source program and a designation statement designating which memory hierarchy an object program mainly refers to data present in, when said object program is executed;

a processing apparatus for producing an optimized object program based upon both source program and said designation statement; and

an output apparatus for outputting said optimized object program; wherein:

said processing apparatus executes:

a step for analyzing said designation statement;

a step for producing an object program which has been optimized as to an access to said memory hierarchy by selecting a processes sequence corresponding to the memory hierarchy designated by said designation statement; and

a step for outputting said optimized object program form said output apparatus.